



Multi-Aircraft Operations in the National Airspace

Enabling scalable operations for Advanced Air Mobility (AAM)

Challenge

Traditional aviation operations, as well as a pilot shortage, limit the scalability of emerging markets, such as Advanced Air Mobility (AAM).

Upcoming
m:N WG
Meeting in
May @
AUVSI
Xponential

Find out
more



Expected Impacts

- Enabling the ability to dramatically increase air traffic in the National Airspace will result in:
 - A profitable, economically viable AAM market
 - Cost savings and convenience, making AAM more accessible to the general public
 - A more effective means of deploying aircraft for public good missions, such as wildfire fighting and providing needed goods and services to underserved areas
 - Spin-off technologies and applications for autonomous systems that apply to other aviation markets and non-aviation domains

Solution

- Enable a system with significantly more vehicles than humans through m:N operations, where a small number of humans, m, operates or supervises many highly autonomous aircraft, N
- Perform research to address barriers to m:N operations, such as:
 - Developing technologies for increasingly autonomous aircraft
 - Capabilities and principles that facilitate humans and machines working and thinking better together
- Lead an m:N Working Group with members from NASA, industry, academia, and regulatory organizations with a goal of coalescing around a common operating model and roadmap to operational approval

Results

- Delivery of an m:N operational approval roadmap that enables the AAM community to move forward more quickly on achieving operational approval through relevant research, demos, and data, standardized operational schemes, and coordinated advocacy efforts
- Release of publicly available tools and data from NASA research activities to accelerate the maturation of AAM

Next Steps

Keep up with our progress, use our data and tools, and participate in our working group here: <https://www.nari.nasa.gov/ttt-ram>



Partners and/or Participants

- Zipline, research on m:N ops for small UAS
- Wisk, research on m:N ops for urban passenger air taxis
- Old Dominion University, beta testing our new Human Autonomy Teaming (HAT) tools
- Georgia Tech, developing next generation controls laws for autonomous aircraft
- Sandia National Labs, researching AAM-relevant COTS sensor performance in fog